**California State University, San Marcos**

**FORM X (WHITE)**

- **Authorization To Offer Non-Degree Extension Credit Course Through Extended Learning**

<table>
<thead>
<tr>
<th>1. Desired Term: Summer term/</th>
<th>Year of implementation: 2011</th>
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<tbody>
<tr>
<td>2a. Course abbreviation and Number:</td>
<td>BUS 1004</td>
</tr>
<tr>
<td>2b. Abbreviated Title:</td>
<td>Six Sigma Master Black Belt, SSMBB</td>
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<tr>
<th>3. College:</th>
<th>Business</th>
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<tr>
<th>4. Number of Units:</th>
<th>6 $</th>
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<th>5. Billing Units:</th>
<th>6 $</th>
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<tr>
<th>6. Allowed Student Levels:</th>
<th>UG X GR X EE (Default is to check all three levels)</th>
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<tr>
<th>7. Grading Method:</th>
<th>Normal (N) (Default is Letter Grade +/-, Students may request Credit/No Credit)</th>
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<tr>
<td></td>
<td>Normal Plus Report-in-Progress (NP) (As for Normal; also allows Report-in-Progress)</td>
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<tr>
<td></td>
<td>Credit/No Credit Only (C)</td>
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<td></td>
<td>Credit/No Credit or Report-in-Progress Only (CP)</td>
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<tr>
<th>8. Mode of Instruction:</th>
<th>Type of Instruction</th>
<th>Number of Credit Units</th>
<th>Instructional Mode (Course Classification Number)</th>
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<tbody>
<tr>
<td></td>
<td>Lecture</td>
<td>4</td>
<td>C-02</td>
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<tr>
<td></td>
<td>Activity</td>
<td>1</td>
<td>C-13</td>
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<tr>
<td></td>
<td>Lab</td>
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<tr>
<th>9. Attributes: Course Requires Consent for Enrollment?</th>
<th>Yes X No</th>
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<tbody>
<tr>
<td>Faculty Credential Analyst Dean Program/Department Director/Chair</td>
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- Prerequisites: Math: Algebra Co-requisites: Black Belt Certification: Pre-Cal.

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<tr>
<th>10. Does this course impact other discipline(s)?</th>
<th>Yes X No</th>
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<td>(If there is any uncertainty as to whether a particular discipline is affected, check “yes” and obtain signature.)</td>
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If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

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<tr>
<th>Discipline</th>
<th>Signature</th>
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<th>Support</th>
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<table>
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<tr>
<th>Support</th>
<th>Oppose</th>
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**Important: Please Complete**

1. Instructor: Salman Taghizadegan, Ph.D.
2. Please complete the Extension Course Proposal Form
   http://www.csusm.edu/academic_programs/curriculum_forms/index.html

**SIGNATURES: (COLLEGE LEVEL)**

1. Program Director/Chair: [Signature] 1/25/11
2. College Dean (or Designee): [Signature] 1/27/11

**(UNIVERSITY LEVEL)**

3. Dean of Extended Learning (or Designee): [Signature] 1/27/11
4. Vice President for Academic Affairs (or Designee): [Signature] 2/8/11

*See attached email*

**PS 2/9/11**
Instructor: Dr. Salman Taghizadegan
Office: TBA
Phone: (760) 304-7208
Office Hours: By appointments
Email: salman.taghizadegan@hunterindustries.com, or df16s@yahoo.com
staghiza@csusm.edu

Text: 1) Essentials of Lean Six Sigma: by Salman Taghizadegan; Publisher: Elsevier
2) Optional: Leading Six Sigma: by Ronald D. Snee, Roger W. Hoerl; Publisher: Prentice Hall, and
3) Electronic Handouts

Course Objectives:
Becoming a Master Black Belt involves a great deal more than just learning advanced statistical techniques. This provides students with the comprehensive Six Sigma leadership tools, methodologies and road maps to drive successful implementation of Six Sigma and other process improvement methodologies within the organization. The curriculum takes students beyond the tools and techniques that they practiced and mastered during the Black-Belt project and provides students with the techniques to manage and lead an overall Six-Sigma program. Various Six Sigma case studies will be reviewed and analyzed on what makes a successful Six Sigma program, the pitfalls to avoid, and how these can be translated into organization.

Prerequisites: Successful completion of the Six Sigma Black Belt Certification. Mathematical skills equivalent to college algebra and computer skills are required.

Grading Policy:
Term Project 30%
Mid-term 25%
Final Exam 30%
Lab/Class participation 10%
Assignments/Quizzes 5%

No make-up exams will be given. Assignments should be completed and submitted on their due date. No late assignments are accepted. Working problems are important to learning how to apply the concepts. Missing a class is not an acceptable excuse for late assignments, and it is the student’s responsibility to find out about the homework assignments.

Individual Project:
An individual project requires application of concepts learned through course work, discussion of techniques, assigned readings, problems, and organizational structure for deployment of Six-Sigma is requirement for this course. A written report (15-20 pages) is due on the day of the final. Each individual will be required to make a 15-20 minutes presentation of the major findings.
Part I
Design and Develop the Required Processes (the Need)

Week of:
Week 1: January 17, 2011

1. Introduction to Six-Sigma Master Black-Belt
   1.1 Six Sigma Fundamentals
   1.2 Six-Sigma Master Black-Belt Review
   1.3 Six-Sigma Black-Belt Review/ Review of Define, Measure, Analyze, Improve, Control
   1.4 Six-Sigma Corporate Strategic Planning Objectives using various Tactics
   1.5 Transitioning Goals/Objectives into Actionable Projects

Week 2: January 24, 2011

2. Roles and Responsibilities of the Master Black-Belt in Lean Six Sigma Philosophy and Strategy
   2.1 Master Black-Belt Roles in the Organization
   2.2 Decision Making Solutions – Evaluating Alternatives
   2.3 Career Path for MBBs Within the Organization
   2.4 Developing and Utilizing a Professional Network
   2.5 Employee Empowerment and Motivation Techniques
   2.6 Effective Coaching, Training, and Mentoring – Self Directed
   2.7 Advanced Presentation Skills
   2.8 Rewards and Recognition

Week 3: January 31, 2011

3. How to Design a Strategic Lean Six-Sigma Infrastructure Successfully (Lean Six Sigma Deployment)
   3.1 The Elements of Successful Six-Sigma Implementation
   3.2 Organizational Structures for Deployment of Six-Sigma
   3.3 Strategies Overcoming Organizational Resistance to Changes
   3.4 Transitioning Goals/Objectives into Actionable Projects

Part II
Launching the Objectives

Week 4&5: February 07&14, 2011

4. Launching the Six-Sigma Project initiative- What works and what doesn’t.
   4.1 SWAT Analysis
   4.2 Project Selection Criteria: Feasibility/ Organizational Impact/ Prioritization and Chartering/ Generate Projects for Financial and Business Growth
   4.3 Six-Sigma Teaming: Forming/ Storming/ Norming/ Performing
   4.4 Conflict Management: the Five Conflict Modes
   4.5 Decision Making Processes and Tools
   4.6 Making the others Buy in for Your Projects
   4.7 Project Assessment Matrix
4.8 Budgeting and Financial Management (Using Financial Measures to Analyze Performance)

4.9 Calculating the Cost of Poor Quality

Week 6, 7, 8 & 9: February (21&28) & March (7&14), 2011

5. Project Selection, Six-Sigma Tools, Methodologies, and Management of Project Hopper
   5.1 Six-Sigma Facilitation Skills (Facilitation and Learning Styles)
   5.2 Supply Chain Management
   **Black Belt Analytical Tools Review:**
   5.3 Advanced Process Improvement Techniques
   5.4 Logistic/Nonlinear Regression
   5.5 Advanced Design of Experiments (DOE)
      5.5.1 Fractional Factorial Design
      5.5.2 Full Factorial (balanced & Orthogonal) Design
      5.5.3 Taguchi Methods
      5.5.4 Model with aliased interactions
      5.5.5 Composite Design (2,3&4-Factors)
   5.6 Advanced Analysis of Variance (ANOVA)
   5.7 Response Surface Methods and Process/Product Optimization
   5.8 Supply Chain Process Improvement
      5.8.1 Supply-Chain Operations Reference-model (SCOR)

**Part III**

**Leading the Effort**

Week 10-11: March 21 & 28, 2011

6. Managing Multiple On-going Six-Sigma Black-Belts Projects (Project Management)
   6.1 Resource Allocation – Managing Black Belts
   6.2 Project Identification and Prioritization
   6.3 How to Master the Art of Six Sigma Facilitation
      6.3.1 Effective Elements of Communication Skills: Listening and Paraphrasing
      6.3.2 Effective Elements of Communication Skills: Questioning
      6.3.3 Timing Your Time from Time to Time
      6.3.4 Building Team Commitment and Interactions
      6.3.5 Handling Conflicts in Teams
      6.3.6 Keep the Energy and Momentum Flowing
      6.3.7 Grouping and Regrouping
   6.4 Communication Planning
   6.5 Advanced Decision Making
   6.6 Change Management Leadership Skills/ Style
   6.7 Leadership White Paper
   6.8 Project Closure

Week 12: April 04, 2010

7. Gaining and Sustaining Momentum
   7.1 Maintaining the Momentum
   7.2 Improving the Efforts
Midterm Exam-Presentation Part I

Week 13: April 11, 2011
8. The Six-Sigma Culture and the Way it Works
   8.1 Merging Six-Sigma with other Strategic Planning Objectives
   8.2 Measuring the Long Term Impact of Six-Sigma

Week 14: April 18, 2011
9. Six-Sigma Applications
   9.1 Master Black-Belt Tactics
   9.2 Lean Six-Sigma Black-Belt Case Studies
   9.3 Lean Six-Sigma – Typical Problems and Their Recovery

Week 15: April 24, 2010
10. Design and Developing Organizational Six-Sigma Roadmap
    10.1 Roadmap for Successful Corporate Goals
    10.2 Creation of a Master Black-Belt Development Plan
    10.3 Design for Lean Six Sigma
    10.4 Tools and Techniques
    10.5 Business Process Management

Week 16: May 02, 2010
11. Report out-Final Presentation
    11.1 Review, Presentations
    11.2 Final Exam (Comprehensive)

PROJECT:

PRESENTATION:
The presentation should be via an electronic medium, about 15-20 minutes.
- Outline.
- Introduction, definition of the project and the objective.
- A copy of your questionnaire.
- Data collection procedures. Describe difficulties and observations.
- Charts and graphs to show trends and categories in data.
- Statistical tests and the outcomes. Do not explain details.
- Conclusion and what you would have done differently.

EVALUATION:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Content and analysis</td>
<td>50%</td>
</tr>
<tr>
<td>Presentation</td>
<td>40%</td>
</tr>
<tr>
<td>Illustrations/ graphs</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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</table>
REPORT FORMAT

ABSTRACT: (1-2 pages)
- The introduction should include a brief but precise definition of the objectives of the study. This also should include of a population definition and the specific characteristic of the population under study.

OBJECTIVES AND FOCUS OF STUDY: (1-2 pages)
- Objectives
- Data Sources
- Survey Questions

HOW STUDY WAS DONE: (8-9 pages)
- Design Choice
- Describe how the data was collected or the survey was concluded:
- Data analysis should consist of two parts:
  1. Descriptive Statistics: Charts, bar graphs, frequency distributions, etc.
  2. Inferential Statistics: Statistical procedures and techniques used to accomplish the objective of the project.

CONCLUSION AND SUMMARY
- State the result of your analysis and critique it. Discuss the possible sources of error.

Note: The UNIVERSITY WRITING REQUIREMENT:
The University writing requirement will be met by the write-ups and the final project.
OFFICE OF EXTENDED LEARNING
EXTENSION COURSE PROPOSAL FORM

In planning the components of our Extended Learning program at Cal State San Marcos, this office consults closely with the academic colleges and departments to determine the suitability of course content, teaching methods and instructor qualifications. To assist us in evaluating your proposed course for credit, please submit this completed form—along with Form X, New Course Non-degree Credit—to our office as soon as possible. Questions before you submit? Call (760)750-4020.

- **Course Title:**
  
  Six Sigma Master Black Belt Certification

- **Course Description:** *(Please provide a short paragraph describing the purpose, topics and audience for your course. Be sure to include the benefits for students who take your course. An edited version of this description will be used for promotional copy.)*

  Master Black-Belts are one of the foundational building blocks of any successful Six Sigma implementation in any organization. The development of Master-Black Belts is a critical success factor in any Six Sigma or process improvement deployment strategy. We have developed to meet these needs and provides certified Master Black-Belts with the necessary preparation for the challenging of managing multiple Six-Sigma projects and leading a company-wide Six-Sigma initiative.

- **Course Objectives:** *(Provide specific student learning outcomes and how they will be achieved.)*

  Becoming a Master Black Belt involves a great deal more than just learning advanced statistical techniques. This provides students with the comprehensive Six Sigma leadership tools, methodologies and road maps to drive successful implementation of Six Sigma and other process improvement methodologies within the organization. The curriculum takes students beyond the tools and techniques that they practiced and mastered during the Black-Belt project and provides students with the techniques to manage and lead an overall Six-Sigma program. Various Six Sigma case studies will be reviewed and analyzed on what makes a successful Six Sigma program, the pitfalls to avoid, and how these can be translated into organization. Some of the topics are

  - **Create the Needs**
    - 1. Roles and responsibilities of the Master Black Belt
    - 2. The keys to successful Six-Sigma deployment

  - **Launch the Initiative**
    - 4. Six-Sigma facilitation
    - 5. Project selection and management of project hopper
    - 6. Managing multiple on-going projects
    - 7. Communication planning
    - 8. Advanced process improvement techniques

  - **Manage the Effort**
    - 9. Sustaining the momentum and growing the efforts
    - 10. Integration of Six Sigma with other Strategic initiative
    - 11. Measuring the long term impact of Six Sigma
    - 12. Developing organization’s Six Sigma roadmap

- **Evaluation:** *(What will be the basis for grades? How will you know that the students have achieved the course objectives?)*

  1) Project completion
  2) Two presentations
3) Short tests and final exam

- **Course Length**: *(How many actual contact hours in class? Note: Credit courses must contain a minimum of fifteen 50-minute contact hours for each semester unit of credit, and outside of class work by students is required.*

  Student who wish to earn Master Black Belt Certification: 60 hours Lecture + 30 hours Lab, total 5 units 4 hours lecture per week and 2 hours of activity per week.

- **Proposed Date(s):**

  Summer Semester, 2011

- **Location**: *(Indicate if you are proposing this course to be scheduled and offered in our facilities, or if this course is to be held at an off-campus location, such as a school, district or county office, company, etc.)*

  Location:
  Hunter Industries, Inc.
  1943 Diamond St.
  San Marcos, CA 92078
  760-744-5240

- **Support Needs**: *(Please indicate any special services you will need, such as audio-visual equipment, photocopying, room set-up, etc.)*

  Audio-visual equipment with computer [PowerPoint Presentation], photocopying

- **Comments**: *(Please add any other relevant information, such as whether or not the course has been taught elsewhere successfully, why the course is needed in our area, marketing suggestions, etc.)*

  This course is taught at USD.
  Six Sigma Master Black-Belt Certification; USD-School of Business Administration-Supply Chain Management

  When completed, please return this form, along with an up-to-date resume (with teaching references) to:
  Eric Bullard, Office of Extended Learning, Cal State San Marcos, 333 S. Twin Oaks Valley Rd., San Marcos, CA 92096; FAX: (760)750-3138; E-mail: ebullard@csusm.edu
Perfect. Thank you!

Cathy Scavone
Sr. Director Business &
Workforce Programs
Extended Learning
Cal State San Marcos
333 S. Twin Oaks Valley Road
San Marcos, CA 92096
p: 760-750-8706
f: 760-750-3138

Refer to our website at http://www.csusm.edu/el/

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From: Lourdes Shahamiri
Sent: Wednesday, February 09, 2011 9:38 AM
To: Cathy Scavone
Subject: RE: BUS 1004

No need to send me another form. If that is ok with you, I'll attach this e-mail to the form.

Take care,

Lourdes

---

From: Cathy Scavone
Sent: Wednesday, February 09, 2011 9:28 AM
To: Lourdes Shahamiri
Subject: RE: BUS 1004

Yes, it is 5 units. Should I make a correction on the copies I made before I sent over and resend? Thank you. I'm still pretty new to this process and these forms and I apologize for missing that!

Thank you again!
Cathy

Cathy Scavone
Sr. Director Business &
Workforce Programs
Extended Learning
Cal State San Marcos
333 S. Twin Oaks Valley Road
San Marcos, CA 92096
Hi Cathy,

The attachments that arrived with the X form for BUS 1004 indicate “Students who wish to earn Master Black Belt Certification: 60 hours Lecture + 30 hours Lab, total 5 units.” However, the X form still shows that this course is for 6 units, billing 6 units. Can you please confirm that indeed this is a 5-unit course? As soon as I hear from you, I will create the course in PeopleSoft.

Thank you.

Lourdes